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SUMMARY

Three species of borers attack peach trees in Ontario: the peach tree borer, the lesser peach tree borer, and the shot-hole borer. You may use any of the following control measures for the peach tree borer: (1) ethylene dichloride emulsion applied to the soil during October or early November, (2) paradichlorobenzene (PDB) similarly applied during the first two weeks of September, or (3) two sprays of DDT applied to the trunks and lower limbs of the trees about July 22 to 25 and again on August 10 to 12.

Approved cultural methods help to control the lesser peach tree borer. Where it is particularly troublesome you may control it with three sprays of a mixture of parathion wettable powder and malathion emulsion applied during the summer.

You can prevent serious damage by the shot-hole borer by keeping the trees healthy and by removing dead and dying wood from the orchard and its vicinity before June each year. Spraying the trunks and lower limbs with DDT during the first week of June gives some protection from this borer.

Safety precautions must be followed in use of insecticides, especially parathion.

CONTROL OF BORERS ATTACKING PEACH TREES IN ONTARIO

by

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KEY TO BORERS OF PEACH TREES

A. Injury to base of tree

Masses of gum and sawdust-like castings at the bases of the trees, indicating the presence of creamy to pale-yellowish caterpillars, which bore into the wood at and below the ground surface (see Figure 1) .... PEACH TREE BORER[2]

B. Injury on trunk and branches

(1) Sawdust-like castings among the gum on wounds and cankers in the upper parts of the tree, indicating the presence of creamy to pale-yellowish caterpillars (see Figure 2) .... LESSER PEACH TREE BORER[3]

(2) Numerous small masses or strings of gum exuding from very small, circular holes in the trunk and branches (see Figure 3) .... SHOT-HOLE BORER[4]

PEACH TREE BORER

Three materials may be used to control this insect: (1) ethylene dichloride emulsion (2) paradichlorobenzene crystals and (3) DDT spray.

1. *Ethylene Dichloride Emulsion*

Ethylene dichloride emulsion very effectively controls the peach tree borer. One thorough application usually gives control for at least three years. Ethylene dichloride may be used with excellent results much later in the season than paradichlorobenzene (PDB), even as late as the end of November if the ground is not frozen. Consequently ethylene dichloride treatment, unlike the application of PDB, will not conflict with harvesting of the crop.

Time of Application – Use ethylene dichloride emulsion only during October and early November. Spring treatments are not recommended.

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[1] Revision of *Processed Publication Series, Entomology,* No. 112.
[2] *Sanninoidea exitiosa* (Say).
[3] *Synanthedon pictipes* (G. & R.).
[4] *Scolytus rugulosus* (Ratz.).

Dosage – A 50 per cent emulsion of ethylene dichloride is available in Ontario. Dilute this stock emulsion, after stirring or shaking it to secure uniformity, as follows:

Age of trees, years	Amount of 50% stock emulsion, pints	Amount of water, pints	Resulting strength of emulsion, per cent	Amount of diluted emulsion per tree, pints	ounces
1	1	9	5	1/8	2½
2-3	1	9	5	½	10
4-5	2	8	10	½	10
6 or more	2	8	10	¾	15

Do not use ethylene dichloride on nursery stock; it will kill the stock.

Method of Application – Make the soil about the trunk reasonably smooth and level with the topmost injury, and fill any cracks in the soil. Do not remove any soil. Weeds or trash do not need to be removed if the soil is level. With a measuring cup, pour the diluted emulsion on the soil evenly around the tree next to the trunk. A little emulsion getting on the trunk will do no harm. Be sure to apply the correct amount according to the age of the tree, and keep the diluted emulsion thoroughly stirred.

Immediately after treating, pile two or three shovelfuls of soil about the trunk and leave it over winter. A large mound is not needed.

One gallon of 50 per cent stock emulsion when diluted with the correct amounts of water will treat 640 one-year-old trees at a rate of 1/8 pint per tree; 160 trees two to three years old at ½ pint per tree; or 60 to 80 trees four years old at ½ to ¾ pint per tree.

2. *Paradichlorobenzene (PDB)*

Time of Application – Apply PDB preferably during the first two weeks of September but never later than the end of September.

Dosage – Trees six years old or older require 1 to 1½ ounces of PDB per tree. Use the greater dosage for trees with large trunks. For trees three to five years old, use ½ to ¾ ounces, and for trees one to two years old, ½ ounce. A vaseline jar or similar container may be converted into a graduate for measuring the PDB. Do not use PDB on nursery stock.

Method of Application – Use the size of PDB crystals sold by insecticide dealers especially for peach tree borer control. Do not use the large lumps sometimes used for destroying clothes moths.

Remove the excess gum, and clear away weeds and trash from the base of the tree for a distance of about a foot. Make the soil smooth and on a level with the topmost injury. Distribute the PDB in a narrow, continuous, circular band, about 2 inches from the trunk. The band should be about 1 inch wide and no crystals

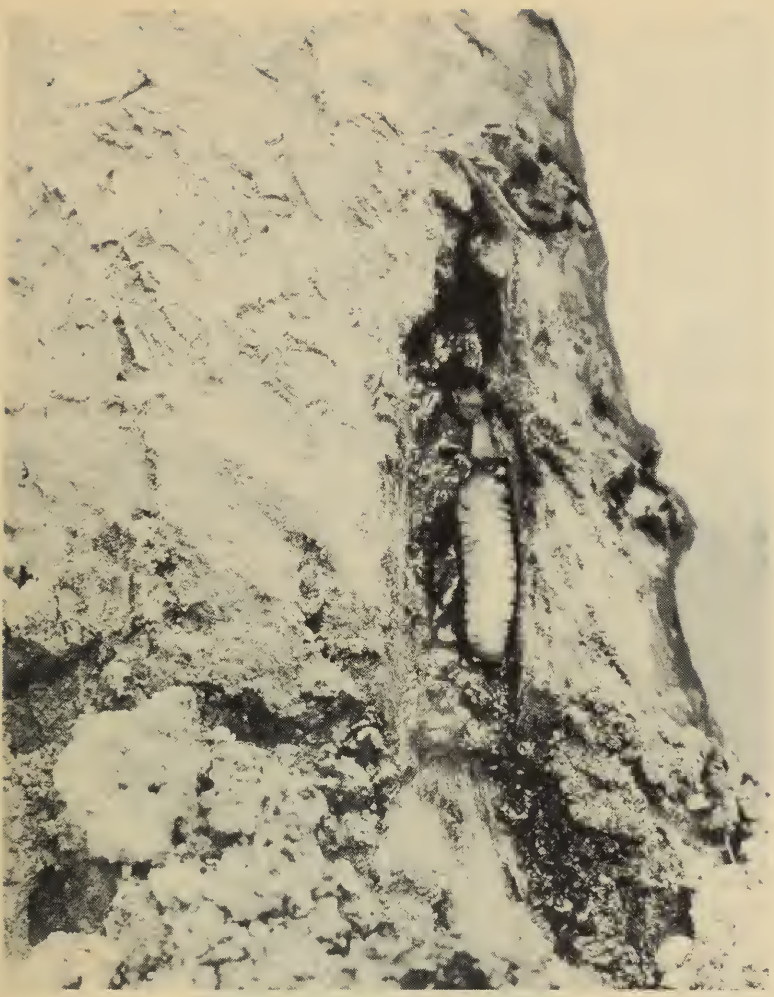

Figure 1. Peach tree borer injury at base of peach tree, with borer in feeding area.

should be closer than 1 inch to the trunk. Place two or three shovelfuls of soil over the PDB, and then compact the earth into a cone-shaped pile with the back of the shovel. The first earth should be placed carefully on the PDB to avoid pushing any of the crystals against the tree.

The trees, particularly those one or two years old, must be treated carefully. If the crystals are placed closer than one inch to the trunk, or if too much is applied, the trees may be injured.

Growers in the Niagara district have experienced no injury to peach trees from PDB treatments applied according to recommendations. However, in other parts of Ontario where winter temperatures, location, and soil may be less suitable for peach growing, trees have been injured, sometimes seriously, by the action of the PDB. In such districts treat with the smaller amounts suggested for the age group (1 ounce for trees six years old or older and ½ ounce for those three to five years old) and in the early spring level off the mounds, removing any PDB that still remains around the tree. Do not treat trees one or two years old.

The best time to use PDB is in the fall, but if this has not been done and the infestation is serious, treat the trees in the spring in exactly the same way as described for the fall applications. Make the spring treatments about May 1 and at latest before May 15. Level off the mounds after four weeks, scattering the PDB crystals that remain around the trees.

3. DDT Sprays

Protect nursery stock from borers by spraying with 50 per cent DDT wettable powder at 4 pounds per 100 gallons of water about July 22 to 25 and again from August 10 to 12.

This DDT spray program may also be used on bearing trees by spraying the trunks and a few feet of ground around the trunks. Take care to avoid getting this spray on the fruit; it may raise the DDT residue at harvest above the legal tolerance. DDT has not given such good results as ethylene dichloride on bearing trees, and may require annual applications for satisfactory control.

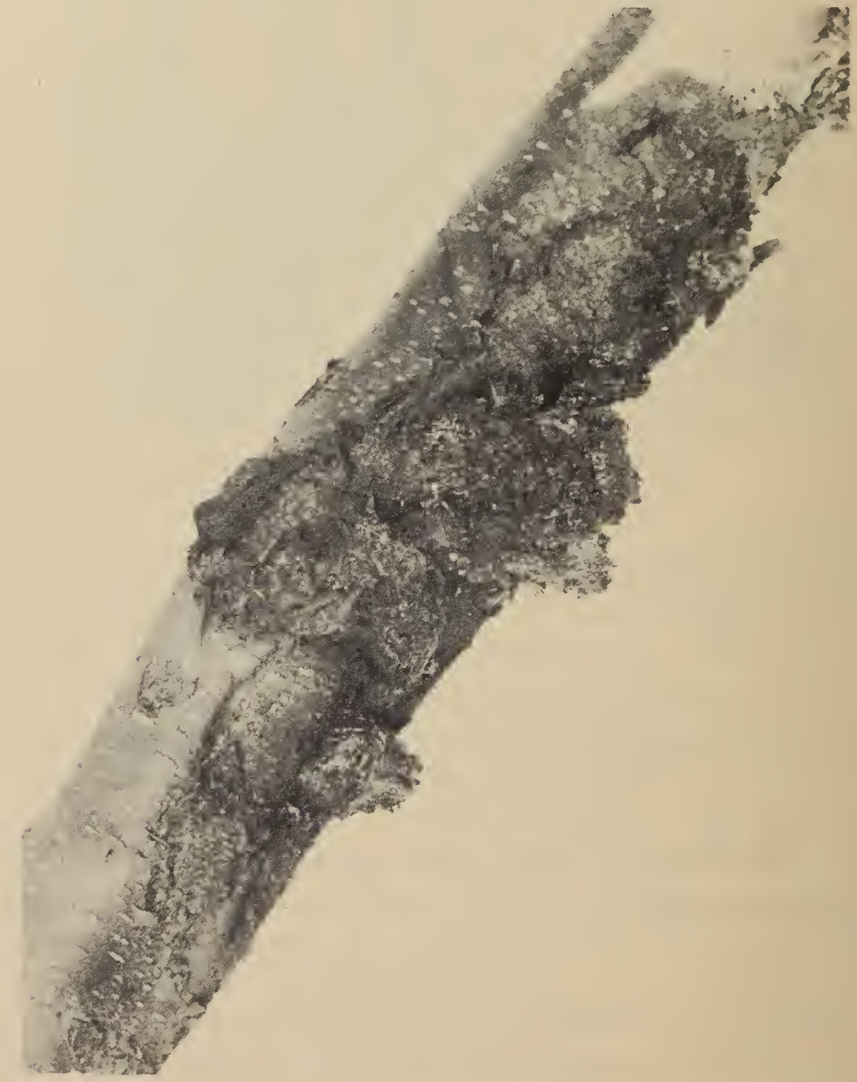

Figure 2. Lesser peach tree borer castings in a canker.

LESSER PEACH TREE BORER

This species resembles the peach tree borer but usually attacks the upper part of the trunk and the larger branches. The lesser peach tree borer does not enter through healthy bark, but only through cankered areas or through wounds resulting from mechanical or winter injury. Peach canker is a fungus disease and is not caused by the borer although the two are often closely associated on the tree.

Control by Cultural Practices

To control this borer it is essential to keep the trees as free as possible from implement wounds, winter injuries, and cankers. In brief, those orchard practices that help prevent cankers and winter injuries are: (1) delaying pruning until March or April (2) practicing close pruning and avoiding stubs (3) ending cultivation in early July and (4) cutting out by the end of June all dead wood overlooked at pruning time.

Regulating the amount of nitrogen available to the trees is also important in preventing winter injury. It is better to use small quantities of fertilizer fairly frequently rather than heavy applications at longer intervals. If the whole cultivation and fertilization program is designed to ensure the proper maturity of the tree before freeze-up, it will be much less susceptible to attack by this borer.

Cankers on trunks and main branches may be – on young trees should be – cleaned thoroughly in May or June and disinfected with mercuric chloride (corrosive sublimate) at ¼ ounce in a gallon of water. Cover with a non-injurious asphalt preparation or with white lead paste made with a small quantity of boiled linseed oil. Do not use white lead containing turpentine.

Control by Spraying

The following spray program has proved effective, especially in the peach growing areas of southwestern Ontario where injury from the lesser peach tree borer is often severe.

Use 15 per cent parathion wettable powder at 1 pound together with 50 per cent emulsible malathion at 1 pint in 100 gallons of water. Make three applications, the first at 5 to 10 days after the second curculio spray (15 to 20 days after the shuck-fall stage), the second three weeks later, and the third three weeks after the second. Use a coarse spray with gun or broom at 400 to 500 pounds' pressure, and direct it at the scaffold limbs and trunk down to the ground. When making the last application be very careful not to spray the fruit.

On young, non-bearing trees, 20 per cent emulsible endrin at 1 quart per 100 gallons of water may be used instead of the parathion-malathion mixture.

SHOT-HOLE BORER

The shot-hole borer breeds only in dead or weakened trunks and branches of fruit trees of all kinds. The adults emerging from this wood may, however, attack healthy trees; if the attack is continued, it may eventually weaken and finally kill them. The all-important step in preventing infestations is to remove and destroy the only kind of wood in which the borer can breed in dead and dying fruit trees and branches. Burn such wood and trimmings before the first of June. Serious outbreaks have frequently started in piles of orchard wood left lying all

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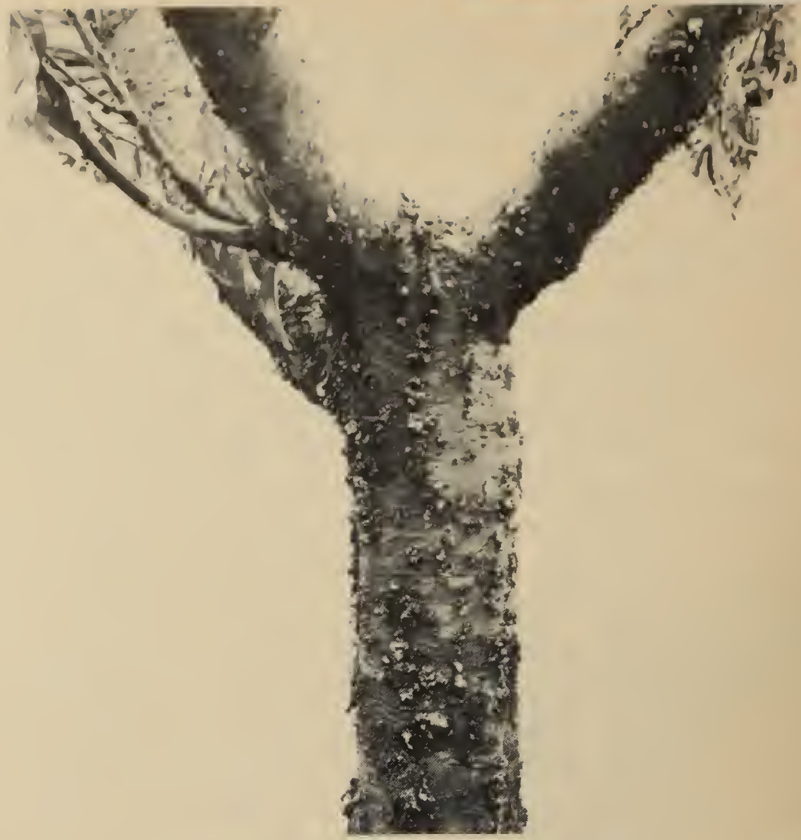

Figure 3. Injury by the shot-hole borer, showing gum exuding from holes.

season near fruit orchards. Where it is not possible to dispose of such wood before June, store it in sheds or cellars in which the windows and doors are kept closed.

Trees slightly injured by the shot-hole borer may be saved by rather severe pruning, thorough cultivation, and application of a quick-acting fertilizer like ammonium nitrate.

To destroy the emerging beetles on the infested trees and those flying in from other infested areas, spray the trunks and main limbs with 50 per cent DDT wettable powder at 2 pounds per 100 gallons of water during the first week of June and two weeks later.

WARNING

For safe handling of the insecticides recommended in this pamphlet, especially parathion, carefully follow all warnings and directions found in every carton and on every package. Parathion especially is a deadly poison.

Regulations of the Canada Department of National Health and Welfare have established the amounts of insecticides that are permitted to remain on food crops sold to the public. To avoid exceeding these amounts follow control recommendations carefully. For further information write to the Entomology Laboratory, Vineland Station, Ontario, or to the Entomology Section, Science Service Laboratory, Harrow, Ontario.

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